PARTS INFORMATION PROGRAM

ELECTRONIC PARTS ENGINEERING OFFICE 507

PIP No. 338
Revision A

Jet Propulsion Laboratory
California Institute of Technology

DATE: September, 19, 1996

SUBJECT:

Availability of Radiation-hardened Logic Parts from UTMC

SUMMARY:

A family of radiation-hardened 5V logic parts, UT54ACS/ACTSXXX series, is now available from United Technologies, UTMC. These parts, built on bulk CMOS epi process, are available in production grades of QML V and Q, and radiation hardness levels of 100 krads and one megarad. They are cell-based devices (0.111x0.081 in^2 die size) designed as a subset of UTE-R gate array family. The construction analysis by JPL has been completed and the quality of the sample parts examined looks good. JPL's prior experience with the supplier includes the use of their ASICs on Cassini.

The individual parts specifications can be found in the 1996 edition of their rad hard logic data book which may be obtained either by calling 800-645-UTMC, or through JPL office 507. The parts have input protection diodes to VCC and GND. The following details are missing from the data book: Input rise/fall times, output transition times, effect of output capacitive loading on the propagation delays, etc. As a design practice UTMC recommends the input rise/fall times not exceed 50ns. At 100ns they have observed oscillation. They have provided us a set of typical output characteristics plots which is available to anyone who is interested. The attached sheets provide a cross-reference of UTMC part numbers with DESC SMD numbers, ordering information, etc. The part types listed herein are the only ones UTMC intends to supply.

It should be noted that UTMC has sold their fab facilities to Rockwell Telecommunications. Rockwell is currently manufacturing wafers for UTMC to create a ten year inventory of all of the existing standard products which the logic devices are part of.

Performance Assessment at Low Voltage:

As part of our low power space electronic parts (LPSEP) effort, UTMC was selected for performance assessment at low voltage (3.3V) because they offer a broad spectrum of QML certified, radiation-hardened, cell based standard 5V products. The electrical characterization done on representative MSI functions by JPL, and on ASICs by UTMC suggest that the parts will work at 3.3V. Some additional work is still being done. Contact Office 507 for the report of the evaluation done to date, or it can be viewed on the World Wide Web using the following address:

http://nppp.jpl.nasa.gov/dmg/jpl/loc/compengg/reports/lpsep.htm.

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